

[table of contents preview](#)
Biomedical and Biological Applications

Cantharidin-Mediated Ultrastructural and Biochemical Changes in Mitochondria Lead to Apoptosis and Necrosis in Murine Dalton's Lymphoma

Surya B. Prasad and Akalesh K. Verma

Automatic Identification and Validation of Planar Collagen Organization in the Aorta Wall with Application to Abdominal Aortic Aneurysm

Stanislav Polzer et al.

Ultrastructure of Lymphatic Stomata in the Tunica Vaginalis of Humans

Jiaxiang Wang et al.

Long-Term Ultrastructural Indices of Lead Intoxication in Pulmonary Tissue of the Rat

Katarzyna Kaczyńska et al.

Osmium Tetroxide Labeling of (Poly)Methyl Methacrylate Corrosion Casts for Enhancement of Micro-CT Microvascular Imaging

William L. Mondy et al.

Microvascular Architecture of Mouse Urinary Bladder Described with Vascular Corrosion Casting, Light Microscopy, SEM, and TEM

F.E. Hossler et al.

The Use of Texture Analysis in the Morpho-Functional Characterization of Mast Cell

Degranulation in Rainbow Trout (*Onchorhynchus mykiss*)

Maurizio Manera

Tubule Density and Diameter in Coronal Dentin from Primary and Permanent Human Teeth

Tathiane L. Lenzi et al.

Interfacial Properties of Three Different Bioactive Dentine Substitutes

Elizabeta S. Gjorgievska et al.

Mechanical Response of Dental Cements as Determined by Nanoindentation and Scanning Electron Microscopy

Mohammad A. Saghiri et al.

A Comparative Scanning Electron Microscopy Evaluation of Smear Layer Removal from Teeth with Different Irrigation Solutions and Lasers

Elif Kalyoncuoğlu and Ebru Özsezer Demiryörek

A Simple and Efficient Method to Observe Internal Structures of Helminthes by Scanning Electron Microscopy

Fernando A. Adnet et al.

Development, Preimaginal Phases and Adult Sensillar Equipment in Aganaspis Parasitoids (Hymenoptera: Figitidae) of Fruit Flies

José Tormos et al.

Correlated SEM, FIB-SEM, TEM, and NanoSIMS Imaging of Microbes from the Hindgut of a Lower Termite: Methods for *In Situ* Functional and Ecological Studies of Uncultivable Microbes

Kevin J. Carpenter et al.

Histochemistry and Ultrastructure of Urocytes in the Pupae of the Stingless Bee *Melipona quadrifasciata* (Hymenoptera: Meliponini)

Waléria C.A. Furtado et al.

Three-Dimensional Morphological and Mineralogical Characterization of Testate Amebae

Eric Armynot du Châtelet et al.

Synchrotron X-Ray Microanalysis and Imaging of Synthetic Biological Calcium Carbonate in Comparison With Archaeological Samples Originating from the Large Cave of Arcy-sur-Cure (28000-24500 BP, Yonne, France)

Emilie Chalmin and Ina Reiche

FIB-SEM: An Additional Technique for Investigating Internal Structure of Pollen Walls

Alisoun House and Kevin Balkwill

Materials Applications
Review Article

Cryogenic Transmission Electron Microscopy: Aqueous Suspensions of Nanoscale Objects

Nathan D. Burrows and R. Lee Penn

Ionic Liquids as Flootation Media for Cryo-Ultramicrotomy of Soft Polymeric Materials

Paul Kim et al.

In Situ TEM Study of Catalytic Nanoparticle Reactions in Atmospheric Pressure Gas Environment

Huolin L. Xin et al.

Nanolithography on Graphene by Using Scanning Tunneling Microscopy in a Methanol Environment

Chulsu Kim et al.

Microstructural Characterization of Long-Period Stacking Ordered Phases in Mg₉₇Zn₁Y₂ (at.%) Alloy

Xiaohong H. Shao et al.

Multi-Scale Correlative Microscopy Investigation of Both Structure and Chemistry of Deformation Twin Bundles in Fe–Mn–C Steel

Ross K.W. Marceau et al.

Energy Loss by Channeled Electrons: A Quantitative Study on Transition Metal Oxides

Kazuyoshi Tatsumi et al.

Fast Mapping of the Cobalt-Valence State in Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-δ} by Electron Energy Loss Spectroscopy

Philipp Müller et al.

Assessment of Metal Pollution Sources by SEM/EDS Analysis of Solid Particles in Snow: A Case Study of Žerjav, Slovenia

Miloš Miler and Mateja Gosar

Electron Channeling Contrast Imaging of Plastic Deformation Induced by Indentation in Polycrystalline Nickel

Shirin Kaboli et al.

Nondestructive Characterization and Enzyme Cleaning of Painted Surfaces: Assessment from the Macro to Nano Level

Catarina Pereira et al.

Microcharacterization of a Natural Blue Pigment Used in Wall Paintings During the Romanesque Period in Northern Spain

Josefina Pérez-Arantegui et al.

Techniques and Instrumentation Development

International Test Results for Objective Lens Quality, Resolution, Spectral Accuracy and Spectral Separation for Confocal Laser Scanning Microscopes

Richard W. Cole et al.

Three-Dimensional Chemical Mapping by EFTEM-Tomography Including Improvement of SNR by PCA and ART Reconstruction of Volume by Noise Suppression

C. Messaoudi et al.

Stereological Estimation of Orientation Distribution of Generalized Cylinders from a Unique 2D Slice

Jean-Pierre Da Costa et al.

Dark-Field Imaging of Thin Specimens with a Forescatter Electron Detector at Low Accelerating Voltage

Nicolas Brodusch et al.

Low-Voltage Electron-Probe Microanalysis of Fe–Si Compounds Using Soft X-Rays

Phillip Gopon et al.

Level Set Methods for Modelling Field Evaporation in Atom Probe

Daniel Haley et al.



Dear Abbe

Dear Abbe,

I am having trouble with my light microscopes. I keep seeing double even when I correctly adjust the interpupillary distance and dioptic parameters. Is it me, or could something serious be wrong with the scope?

Cross-eyed in Chicago

Dear Cross,

There is probably something wrong with the scope, and there is a high probability that there is something wrong with you. The only time I have seen double in the microscope is after a morning of too much Rüdeshheimer Kaffee with an old friend, Hans Karl Adam. We stopped by the lab for coffee, but all we could find was an old bag of foul-smelling coffee, which we had to brew in over-chlorinated tap water. Fortunately we had some cheap brandy laying around (used as alternative fuel for a rusty microscope lamp). The label had worn off, and the cork had to be removed with a pair of vise grips, so I'm guessing it was cheap brandy. After two flambéed cups later, my interpupillary distance was widened and my dioptic parameters were obliterated. I think Herr Adam switched to Asbach Uralt later to perfect the drink.

Dear Abbe,

We have a dual-head microscope for two people viewing histology slides simultaneously. I just recently moved to the lab, and I've noticed couples spending more and more time at this scope—more than samples would warrant. I am worried that there is some other purpose than just shared viewing of the slides. Have you ever noticed this phenomenon?

Melanie in Montreal

Dear Melanie,

Yes, indeed, I have some knowledge of this occurrence and should warn you about certain mating systems in Microscopy Cultures in labs around the world. This uncommon but growing culture has been studied extensively by my good friend and social anthropologist, Franz Boas. He dabbled in the mating rituals of laboratory workers and uncovered a strong and unusual mating system among microscopists. He noted that, in some histology labs, as couples spent time looking at slides together, they formed strong bonds (not unlike pretzels and beer). It became common to have a “date,” and the male of the species providing H&E-stained sections for the occasion. As they progress, the samples become more intimate and suggestive, leading to histochemistry and even immunocytochemistry in the more advanced stages. In the past, this could end in microscopy haikus (don't ask) and ocular tête-à-têtes, but now with our digital culture there is the unfortunate chance these dual-head microscope sessions could lead to microxting (why do you think there's a keyboard attached to your digital microscope?). I wouldn't really worry unless they move from the dual-head microscope to a confocal with a large LCD display for group viewing.

Having trouble seeing your way through a sticky situation? Feel free to sling your troubles at Herr Abbe! You can contact him through his minimally capable assistant at jpsshield@uga.edu.

June 8 - 13, 2014

LEHIGH MICROSCOPY SCHOOL

Lehigh University, Bethlehem, PA USA

MAIN COURSES

SCANNING ELECTRON MICROSCOPY
AND X-RAY MICROANALYSIS
June 9-13

INTRODUCTION TO SEM AND EDS
FOR THE NEW OPERATOR
June 8

SPECIALIZED COURSES

FOCUSED ION BEAM (FIB):
Instrumentation and Applications
June 9-12

PROBLEM SOLVING:
Interpretation and Analysis of
SEM/EDS/EBSD Data
June 9-13

QUANTITATIVE X-RAY
MICROANALYSIS:
Problem Solving using EDS and
WDS Techniques
June 9-13

SCANNING TRANSMISSION
ELECTRON MICROSCOPY:
From Fundamentals to Advanced
Applications
June 9-13

For more information, contact:
Sharon Coe | 610.758.5133 |
sharon.coe@lehigh.edu

Register and pay in full by
April 15 to receive an early
bird discount.
www.lehigh.edu/microscopy

44 YEARS OF EXCELLENCE